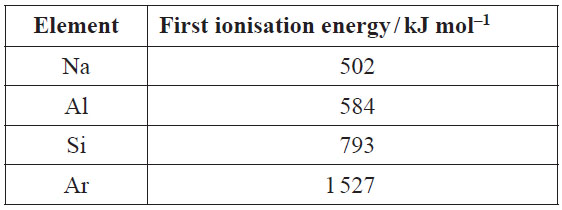
**Ionisation Energy**

**1)** Define First ionisation energy:

The following table shows the first ionisation energy values for elements in the third period of the periodic table.



Justify the periodic trend of first ionisation energies shown by the data in the table above, and relate this to the expected trend in atomic radii across the third period.

**2.** The following table shows the electron configurations of four atoms, He, B, N, and Ne.

#### Arrange these atoms in order of increasing first ionisation energy

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#### 3) Discuss the data for the following

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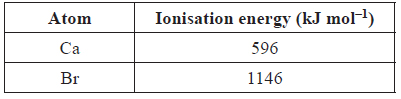
**4)** A chlorine atom has a greater first ionisation energy than a sodium atom.

**5) i)** Write a balanced ion-electron equation to show the first ionisation of lithium.

**ii)** With reference to the graph below, discuss the general trends in ionisation energies from lithium to sodium, and account for any anomalies.



**6)** Account for the differences in the atomic properties given below



**7)** A bromine atom, Br, is smaller than a scandium atom, Sc, but its ionisation energy is larger.

**8) i)**  Describe what is meant by “the ﬁrst ionisation energy of chlorine”.

**ii)** Place magnesium, calcium and chlorine atoms in order of increasing first ionisation energies (IE). Justify your answer in terms of the factors that affect ionisation energy.

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